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Salt-Free Diet in Cutaneous Tuberculosis.—Fifty-one cases of cutaneous tuberculosis have been under treatment by the Herrmannsdorfer salt-free diet for an average of fifteen months, with surprisingly favorable results. Seventeen of the cases developed no new foci in the skin after discharge. Twelve showed marked improvement; 16 were treated for a few months only and 6 showed no improvement. Some of the patients had residual lesions at the end of the treatment as represented by small isolated nodules. After a few weeks of treatment, there appeared an inflammation of the focus followed by a desiccation, pallor and gradual disappearance, with only small scales remaining. Microscopically, young connective tissue with new capillaries could be demonstrated in the regions. It was shown by culture that tubercle bacilli gradually disappeared from the healing lesion. The relatively long duration of treatment could be shortened by the use of such adjuvants as resorcin ointment, ultraviolet ray or cauterization. During the height of the treatment the Mantoux test became more marked and there was a shifting to the acid side of the acid-base equilibrium. Thirty-six patients out of 42 showed a decrease of the pH in the urine. In general the patient's blood plasma showed a decrease in the alkali reserve and a diminution in the sodium, calcium and magnesium contents of the skin, whereas an increase in potassium was noted.—*Ueber Erfolge und Wirkungsmechanismus der kochsalzarmen Diät (nach Herrmannsdorfer) bei Hauttuberkulose, J. Dörffel, Deutsche med. Wchnschr., February 13, 1931, lvii, 268.*—(*H. S. W.*)

Sarcoid and Tuberculosis.—Boeck's sarcoid (multiple, benign miliarlupoid) has attracted a good deal of attention in recent years. A case recently under observation presented the following points of interest: A 17-year-old girl developed recurrent iritis, reddish-brown nodules on the nose and the upper and lower extremities, cough, expectoration, fever, haemoptysis and shortness of breath. These symptoms continued more or less intermittently for nine years, when she was admitted to a sanatorium. On her admission she presented sibilant râles over the hilum region and left upper lobe. The X-ray revealed infiltration of the apices, midlung fields and region of the root on both sides. The sputum was abundant, mucopurulent and blood-streaked; microscopic examination revealed many red blood cells, few epithelial cells and fibres, but no tubercle bacilli were found, nor were they found in culture or by animal inoculation. There was a moderate anaemia and a leucopoenia. Histological examination of one of the cutaneous nodules showed circumscribed, infiltrated foci in the deeper parts of the cutis, made up of epithelioid cells, a few lymphocytes and Langhans giant cells. X-ray therapy led to retrogression of the cutaneous lesion and to moderate improvement of the pulmonary symptoms, although no essential changes appeared in the lungs during six months' observation. For a long time, Boeck's sarcoid was believed to be one of the pseudoleucaemic diseases until Boeck himself and others demonstrated tubercle bacilli in these lesions. It is now generally believed that this malady is related in some way to tuberculosis.—*Zur Frage des Boeck-*

schen Sarkoids, einer sonderen Form atypischer Tuberkulose, J. Michelsen, Deutsche med. Wchnschr., April 3, 1931, lvii, 574.—(H. S. W.)

Recovery from Tuberculous Meningitis.—The report of a case in a Negro with evidences of syphilitic meningitis is given; subsequent observations of tuberculous meningitis were made, and a favorable termination reported. A review of the literature reveals a number of contributions on the curability of tuberculous meningitis and numerous reports of cures. This number has been considerably reduced because of insufficient scientific data. Seventy-three cases of presumably authentic cures were collected. A study of this group of cases does not enlighten us with information that may be of value in the direct treatment for this disease in the future. Cures have been attributed to various factors such as the age and resistance of the patient and a low virulence of the organism. Statistics of the collected cases show the highest percentage of cures among patients above 20 years of age (33 per cent) and the lowest percentage in infants. The traditional and fixed idea that a patient with tuberculous meningitis must die should be reconsidered. No doubt, a recovery is extremely rare, but no one can foretell when this unexpected favorable termination may occur. The tendency to discard the diagnosis of tuberculous meningitis and disregard such laboratory observations as the presence of tubercle bacilli and successful inoculation into guinea-pigs, merely because the patient recovered, seems unscientific and illogical.—*Tuberculous Meningitis with Syphilitic Meningitis Terminating in Recovery, D. W. Kramer and B. B. Stein, Arch. Int. Med., October, 1931, xlviii, 576.—(W. I. W.)*

Changes in Phrenic and Vagus Nerves in Pulmonary Tuberculosis.—Phrenic nerves in 67 cases, of which 56 were obtained by phrenic exairesis and 11 at postmortem, were examined. Pathological changes were found in 11 of the phrenic-exairesis group and in 6 of the postmortem group. In the former the changes were only found in the lower third of the nerve, and in the latter group in about two-thirds of its length. The changes in chronic pulmonary tuberculosis were almost exclusively a proliferation of the elements of the perineurium and endoneurium, which occasioned degenerative processes in the myelin sheath and in the axone. The process originated in the distal part. The vagus nerve was studied in 5 cases. The changes found were analogous to those seen in infectious diseases. From a pathomorphological standpoint the changes in the vagus are considered as a degenerative and proliferative neuritis, while those in the phrenic are of the *periendoneuritis nodosa* type.—*Zur pathologischen Histologie des N. phrenicus u. N. vagus bei Lungentuberkulose, W. Stefko, Beitr. z. Klin. d. Tuberk., 1930, lxxiii, 399.—(H. J. C.)*

Benign Chronic Miliary Tuberculosis.—There is a type of pulmonary miliary tuberculosis with generalized lymph-node enlargement and enlargement of the spleen. This type resembles Hodgkin's disease. In some respects it is relatively benign clinically, and patients feel well, are able to work, are occasionally subfebrile, the Pirquet test is always negative, the enlargement of the spleen and lymph nodes may retrogress. The miliary tubercles often do not become caseous, and they are situated not in the alveoli but in the interstitial areas. One case which has run a clinical course of four years revealed the following features: A sense of wellbeing save for fatigue, a gain of 14 pounds, occasional periods of subnormal temperature, generalized enlargement of lymph nodes and of the spleen, no cough, no expectoration, red and white cells both normal, lymphocytes 25 per cent, eosinophiles 6 per cent, Pirquet test negative. At first Hodgkin's disease or aleukaemic lymphadenitis was suspected. Later, biopsy of a lymph node revealed seeding with giant-cell tubercles, which showed little tendency to caseation. The X-ray revealed miliary tuberculosis of the lungs. In the four years of observation the lymph nodes throughout became definitely reduced in size and were present as very small nodes in the inguinal regions: in the axilla they were about the size of cherries. The spleen was still enlarged and the X-ray film of the lung unchanged. In the meantime the patient had been given X-ray therapy.—*Ueber eine besondere Form von gutartiger chronischer Miliartuberkulose, W. Nonnenbruch, Deutsche med. Wchnschr., May 29, 1931, lvii, 919.—(H. S. W.)*

Meningismus in Miliary Tuberculosis.—Superficially meningismus completely resembles meningitis but the spinal fluid is normal. It can occur at the beginning or during the course of almost any infectious disease. In tuberculosis it is rare and in miliary tuberculosis previously unknown. A clinically diagnosed and verified (autopsy) case of meningismus in miliary tuberculosis is reported. The case was one of open, progressive, bilateral pulmonary tuberculosis in which, associated with high fever, there were all the clinical symptoms of meningitis,

but three lumbar punctures showed a normal spinal fluid. Twenty-seven days after the onset of cerebral symptoms the patient died. Exhaustive macroscopic and microscopic examinations of the brain and bone-marrow revealed haemorrhages into the cerebrum and hyperaemia of the basal cysterna. Aside from the pulmonary tuberculosis an early miliary tuberculosis was found in the lungs, spleen, liver and kidneys. What relation the latter had to the meningism was not apparent.—*Meningismus bei Miliartuberkulose, H. W. Hoffmann, Ztschr. f. Tuberk., 1930, lix, 55.*—(*H. J. C.*)

Treatment of Early Tuberculosis.—The earliest possible diagnosis of phthisis is made by the X-ray. In Denmark provision is made for roentgenological examinations at State expense. Emphasis is laid on the value of serial X-ray examinations in diagnosis and in distinguishing between early and late disease. The aim is to recognize the acute, early phases of the disease and to start intensive treatment at this stage. At the Vejlejord Sanatorium use is made of sanocrysin in the more severe early infiltrations before cavitation has commenced. When cavities are present, artificial pneumothorax is tried. If the latter is ineffective or impractical, phrenic avulsion, cauterization of adhesions or partial plastic operations are considered. The combined use of artificial pneumothorax and sanocrysin has proved successful in numerous cases of acute caseous pneumonia. Sanocrysin is not used in the early-infiltration cases in which there is a tendency toward spontaneous healing; conservative treatment alone suffices.—*The Early Phases of Tuberculosis and Their Treatment, J. Gravesen, J. State Med., xxxix, May, 1931, 275.*—(*J. P. B.*)

Treatment of Advanced Tuberculosis.—The *spes phthisica* should be kept alive. Relief of trivial symptoms is often possible, and distracts the patient's mind from the hopelessness of his situation. Certain forms of occupational therapy are also of value. Sympathetic and efficient nursing care are essential. Insomnia due to breathlessness and cough may be relieved by one-half grain of ephedrine combined with a bromide mixture and taken at bedtime. Hot milk night and morning shortens attacks of coughing when the sputum is profuse. A mixture of 15 grains of sodium bicarbonate, 5 grains of sodium chloride and 10 minims of spirit of chloroform in hot water also aids expectoration. Early stages of laryngitis should be treated by the direct cautery. Later, nerve-section or injection may be used. Silence is important. Benzoin inhalations are soothing. The best local anaesthetic is a mixture of equal parts of orthoform, anaesthesine, and lactose. Insomnia should be treated with hot drinks. If hypnotics are used it is wise to use a dose sufficient to produce sleep. Bromide and chloral hydrate, and Dover's powder are recommended. Pain in the chest is treated with counterirritants. Strapping is usually impractical because of dyspnoea. Terminal enteritis is treated by a reduced diet of low residue, opiates, and bismuth. Starch-and-opium enemata are used for ulceration of the large intestine. Codliver-oil and tomato-juice mixture is worthy of a trial. Anorexia is treated with a mixture of hydrochloric acid, strychnine and gentian. Vomiting is treated with a sedative linctus just before or after meals. Small doses of tincture of iodine are of value. Treatment of these cases is a psychological as well as a physical problem. The aim is to promote their comfort and make death painless.—*The Treatment of Advanced Pulmonary Tuberculosis, R. Massingham, parts I and II, Lancet, October 3 & 10, 1931, ccxxi, 757 & 811.*—(*R. M. F.*)

Institutional Treatment of Tuberculosis.—Until the end of the War, the sanatorium was practically the only specialized institution in England for cases of pulmonary tuberculosis. Since then, various kinds of institutional treatment have come in to supplement sanatorium treatment. However, the sanatorium forms the keystone in the whole system. Many patients in any stage of the disease are benefited, provided they are reparable at all. But the most efficient utilization of the sanatorium demands that the patients be allowed to stay only so long as they receive considerable benefit. Having learned the sanatorium methods, they are allowed to continue their treatment at home. If financial assistance is necessary, a subsidy is given by the Public Assistance Department. This is believed to be more economical than carrying the patient on the sanatorium list. The cost to the municipality of sanatorium treatment can be reduced by excluding nontuberculous patients through the use of observation beds. The provision of nursing service for discharged patients also reduces the expense of keeping patients in an institution. Hospitals have been set aside for the advanced cases, where skilled technical attention and encouraging psychological treatment are given. Institutional treatment is also given to children who are tuberculous or have been exposed. Another form of institutional treatment, the village settlement, is very useful, but the cost would be prohibitive if

the practice were extended much.—*The Provision of Institutional Treatment for the Tuberculous, J. Watt, J. State Med., xxxix, June, 1931, 311.*—(*J. P. B.*)

Climate in Tuberculosis—When the sanatorium regimen can be conscientiously carried out, whether in an institution or at home, climatic conditions are of secondary importance; but to deny the beneficial influence of certain climatic regions as a valuable adjuvant in the treatment of tuberculosis is as dangerous and unscientific as the belief in the specific curative quality of any particular climate. A change of climate, except in the latest stages of the disease, if of either a pulmonary or a laryngeal character, is nearly always good. While a change from an unfavorable climate to a favorable one, or from a good to a better, must naturally be considered preferable, this rule is by no means inflexible. The native locality of the tuberculous must be taken into consideration when making a climatic change. There exist idiosyncrasies in regard to climatotherapeutics and aerotherapeutics. These idiosyncrasies cannot be discovered beforehand; they can only be learned by experience. The value of any climate to a tuberculous patient cannot be determined or compared with any other, unless the patient lives under careful medical guidance in a sanatorium or private home and follows the best hygienic and dietetic treatment in both instances. Patients with laryngeal disorders are often benefited by a change to a moderately high and warmer moist climate with between 500 and 1,500 feet of altitude, particularly when there is a chronic feeling of dryness in the throat. When there is a tendency to moist catarrh the extremely dry and hot climates, provided dust-storms are not frequent, are often beneficial. In patients with pulmonary tuberculosis, a weak heart, distinctive heart or serious kidney lesions, emphysema, constant fever and extreme nervousness are contraindications to high altitudes. In the choice of locality for any patient suffering with a pulmonary or laryngeal lesion many factors must be taken into account. Experience has shown that when great climatic changes have been made, patients frequently relapse when returned to their former home. Nostalgia may often produce disastrous results, for mental depression retards recovery and aggravates pathological conditions. For the morose and hypochondriacal patient, isolation or long distances away from home have often produced the same result as in the patient with nostalgia. To remove a patient in an advanced and evidently hopeless stage from his home to a long distance is as cruel as it is unscientific. The patient's means should be sufficient to avoid all possible anxieties and worry in respect to finances. The ideal climate for the average patient with pulmonary tuberculosis in the earlier and more hopeful stages of the disease is the one in which the extremes of temperature are not great, with only rare fogs or none at all, with the purest possible atmosphere, with relatively little humidity, with much sunshine, and with all conditions that permit the patient to live comfortably outdoors the greatest number of days out of the year and the greatest number of hours out of the twenty-four. For tuberculosis of the bones and joints and scrofulous diseases of childhood, the seacoast climates in the temperate zones comes nearer to deserving the term "specific" than anything else.—*Climate in Tuberculosis and the Prevention of Relapses, S. A. Knopf, J. Am. M. Ass., June 13, 1931, xcvi, 2023.*—(*G. L. L.*)

Climatic Sanatoria for Surgical Tuberculosis.—The effect of open air and sunlight on surgical tuberculosis is both general and local. The defensive mechanism of the body is so improved that less mutilating surgery is required and a better control of the tuberculous process is obtained. Such treatment causes fewer patients to become consumptive and returns more of them to society as useful citizens at less cost than would be the case otherwise. It is necessary that the sanatoria be provided with competent orthopaedic surgeons and that they be located so as to receive abundant sunlight. In order to obtain the maximum benefit of the latter, the location should be in the mountains and the architecture of the buildings should be of a special type.—*The Need for Climatic Sanatoria for Indigent Patients Suffering from Surgical Tuberculosis, O. Bernard, J. State Med., xxxix, June, 1931, 333.*—(*J. P. B.*)

Home and Institutional Treatment of Tuberculosis.—The patient with pulmonary tuberculosis is best cared for in an institution especially conducted for the treatment of this disease, and, in the majority of instances, at an appreciable distance from his home. In a few cases home treatment will work; in the majority of cases it will not. The majority of patients are tremendously upset at the diagnosis of tuberculosis, and need a period of relative isolation in order to attune themselves to changed conditions. In the treatment of tuberculosis the main reliance is placed on rest and relaxation. The patient taking the cure at home may obtain the bodily quiet but is subject to three sources of irritation and disturbance; family,

friends and business. It should also be borne in mind that the constant exposure of small children to an open tuberculous case is fraught with grave danger. In the institution the visiting of friends and relatives can be controlled, while in the home it is vastly different. A patient leaving home for treatment is filled with a purpose. Wherever he may go, he believes that his chances of recovery are greater there than at home. Consequently he faces the situation with greater enthusiasm and hope. The *esprit de corps* of the institution is a factor that cannot be counted on in the home. It is a form of mass psychology as compared with individual psychology.—*Pulmonary Tuberculosis: Home Treatment versus Institutional Treatment, P. H. Ringer, J. Am. M. Ass., August 8, 1931, xcvii, 381.*—(*G. L. L.*)

Psychic Readjustment after Sanatorium Life.—The initial clinical and anatomical symptoms of pulmonary tuberculosis are often general and vague, with the result that many nontuberculous patients are sent to sanatoria. The roentgenological description of increased root shadows often strengthens the erroneous opinion of the clinician. In neurotic people with a tendency for flight from work and surroundings, even a brief contact with tuberculosis stimulates an unconscious fear which may lead to symptoms suggestive of the disease. The psychic reaction of the tuberculous and the nontuberculous individual who has been in a sanatorium is considerable. After discharge the patient may find difficulty in getting employment because of the odium of tuberculosis which is falsely attached to him. This is true whether the patient did or did not have tuberculosis.—*Psychische und wirtschaftliche Schädigungen nichttuberkuloser Heilstattenpatienten, J. W. Samson, Deutsche med. Wchnschr., March 6, 1931, lvii,* 406.—(*H. S. W.*)

Surgical Treatment of Pulmonary Tuberculosis.—The constant motion of the lung through respiration offers a serious handicap to the process of healing in this organ. On this fact rests the rationale of surgical or "collapse" therapy, which aims at immobilization. The several surgical procedures of artificial pneumothorax, phrenicectomy and thoracoplasty have now been employed a sufficient time to justify an attempt at evaluation. Artificial pneumothorax is a very valuable manoeuvre which should be employed (in unilateral disease) in cases of early infiltration, especially if cavity be present and if bed-rest is not conducive to improvement, in spontaneous pneumothorax, in pleurisy with effusion and tuberculous empyema and in uncontrollable pulmonary haemorrhage. It is dangerous in rapidly advancing disease. It should not be used in early tuberculous pneumonia or in the presence of complications, such as enteric tuberculosis, or cardiac or renal disease, or diabetes. Effusion (5 to 10 per cent of which is empyematous) is the most common complication. Adhesions prevent effective collapse in more than half the patients who present the indications otherwise for it. In phrenicectomy, evulsion of the nerve is preferable to crushing or removing a segment, for this removes the terminal branches of most of the accessories. It must be done by a surgeon, in contradistinction to artificial pneumothorax. The operative dangers are injury to large vessels, the vagus, recurrent laryngeal or cervical sympathetic nerves or the thoracic duct, but these are not prominent dangers. Cessation of diaphragmatic movement is more important than the degree of rise of the diaphragm. The procedure is especially beneficial in its closure of cavities, both in cases without and in those with pneumothorax. It has been found to be a valuable procedure in all stages of the disease and it is often used as a substitute for pneumothorax. Thoracoplasty is a major surgical procedure which carries a considerable risk. Its ideal application is in chronic unilateral tuberculosis, when fibrosis is evident and the patient is in good condition. It yields best results when there is evidence of definite retraction. The surgical treatment of tuberculosis is here to stay, for it is daily prolonging and saving lives, which otherwise could expect little from ordinary sanatorium regimen. Physicians who care for tuberculous individuals should know the indications.—*Surgical Measures in the Treatment of Lung Tuberculosis, A. Ehrenfried, Am. Jour. Surg., April, 1931, n. s. xii, 95.*—(*H. S. W.*)

Collapse Therapy.—As a rule tuberculous cavities exceeding the size of a hazel-nut do not heal spontaneously unless the thoracic wall is soft and retractable, as it is in only young individuals. Larger cavities heal but rarely and then only after a long time. Unless a patient can take very good care of his disease cavities larger than a hazel nut form a definite indication for collapse therapy. The method of choice is pneumothorax. Massive pleural exudates do not often occur under proper technique. In the author's cases sizeable exudates occurred in 3.5 per cent. This low figure is attributed to the fact that all pneumothorax patients received tuberculin treatment. Adhesions which will not stretch sufficiently to allow collapse of a cavity after a period of 3 or 4

months should be severed by Jacobaeus's method. If pneumothorax cannot be induced on account of adhesions, phrenicectomy is indicated in small cavities and thoracoplasty or paraffine tamponing in larger cavities or in lower-lobe cavities. The latter procedure is given the preference whenever it can be used because the operation is much less severe. In 45 of 100 cases the sputum disappeared and the cavity closed. An important objection to thoracoplasty is the fact that patients must be in such good general condition for this operation that they frequently do not feel that a major operation is warranted by their condition.—*Welche Methoden stehen uns für eine Kollapstherapie zur Verfügung? W. Neumann, Wien. klin. Wchnschr., December 4, 1931, xliv, 1539.*—(*M. P.*)

Collapse Therapy in Pulmonary Tuberculosis.—The indications, technique and after-treatment are described for the various forms of collapse therapy now used in the management of pulmonary tuberculosis. Phrenicectomy is of distinct value in many cases of localized tuberculosis and as an adjunct to artificial pneumothorax. In selected cases the operation of Jacobaeus has proved very helpful. When indicated it should be performed as early as possible.—*Frenicectomia, pneumotorace terapeutico, ed operazione di Jacobaeus, G. Comissatti, Tubercolosi, February, 1930, no. 2, 57.*—(*U. E. Z.*)

Immediate Results of Collapse Therapy.—It is frequently observed that the toxic symptoms of patients with pulmonary tuberculosis decrease immediately after the first or second insufflation of air before a suitable collapse is established. In many cases the discrepancy between this symptomatic relief and the incompleteness of the pulmonary collapse is striking. The usual explanations of the therapeutic action of induced pneumothorax are unsatisfactory to an understanding of such occurrences. In normal respiration the lung is in a continuous state of hyperaemia due to the negative pressure, this being particularly marked in the inspiratory phase. By diminishing the negative intrapleural pressure, even without establishing a collapse, this hyperaemia is reduced, and therefore the resorption of toxic products is markedly decreased. This mechanism is probably the cause of the immediate symptomatic improvement following induced pneumothorax.—*Ueber die unmittelbaren therapeutischen Resultate der Kollapsbehandlung bei Lungentuberkulose, H. P. Caryophyllis, Wien. klin. Wchnschr., November 20, 1931, xliv, 1467.*—(*M. P.*)

Prognosis of Pulmonary-Collapse Therapy.—Pulmonary collapse was instituted in 416 cases,—269 pneumothorax, 51 phrenic exairesis and 96 cases thoracoplasty. Constitutional indices and virulence of the tubercle bacilli were of no prognostic significance, but two circumstances were determinative as to the value of collapse therapy,—the presence of intrapleural adhesions and tuberculous intoxication. With pneumothorax the early cases yielded the best results. When adhesions could be destroyed by the Jacobaeus method the therapeutic results proved better. The prognostic evaluation of thoracoplasty depends upon the grade of intoxication of the organism, and the lesson learned is that thoracoplasty should be performed before the intoxication of the organism has progressed. The author does not place any value upon phrenic exairesis as a test operation or as an aid, but, on the other hand, phrenic exairesis alone with small upper-lobe cavities yielded favorable results in 61.2 per cent of his cases, and in 71.4 per cent of processes of the lower and middle lobes.—*Die Prognose der Luhgenkollapstherapie, H. Jessen, Beitr. z. Klin. d. Tuberk., 1930, lxxiii, 710.*—(*H. J. C.*)

Bilateral Collapse Treatment of Pulmonary Tuberculosis.—The author reports on two years' experiences with bilateral collapse treatment in 48 patients. In 13 of the cases the interval between the first and second pneumothorax was considerable and in 28 cases the two were performed simultaneously. Phrenic exairesis was combined with pneumothorax in 7 cases. Among the 48 cases treated, 25 yielded more or less satisfactory results. The author stresses the importance of early treatment of the second side.—*Die doppelseitige Kollapstherapie in der Behandlung fortgeschrittener Fälle von Lungentuberkulose, H. Scholz, Beitr. z. Klin. d. Tuberk., 1930, lxxiv, 146.*—(*H. J. C.*)

Artificial Pneumothorax.—Artificial pneumothorax increased markedly in the period, 1919 to 1929, and its use in early cases became decidedly more frequent. The results of pneumothorax treatment in patients in whom it was successful are compared with results in patients in whom for a number of reasons it could not be instituted. Of the first group 38.5 per cent became closed, 22.5 per cent stationary, and 39.5 per cent worse or died, while of the group without pneumothorax 8 per cent became closed, 33 per cent remained stationary, and 59 per cent became worse or died.—*Die Bedeutung des künstlichen Pneumothorax für die Tuberkulosebekämpfung, P. Beeh, Ztschr. f. Tuberk., 1930, lviii, 235.*—(*H. J. C.*)

Artificial Pneumothorax.—In considering the future of artificial-pneumothorax treatment, the administrative problems must depend on the clinical outlook. The clinician must assure himself before the induction of pneumothorax that the treatment can be adequately carried out after the patient has left his immediate care. Careful supervision is absolutely essential. The presence of fluid, the degree of mediastinal displacement, the amount of gas, the position of the patient for the refill, and many other factors must constantly be borne in mind and dealt with intelligently. Many of the bad results are the direct outcome of faulty judgment and handling by inexperienced persons. It is advisable to keep the control of the treatment in the hands of the public tuberculosis service and to do the greater part of the work at central or branch dispensaries.—*The Future of Artificial Pneumothorax Treatment from the Administrative Point of View, N. Tattersall, Tubercle, October, 1931, xiii, 1.*—(*M. E. P.*)

Artificial Pneumothorax.—Artificial pneumothorax is accepted as a treatment of great value because it is the best method of resting the diseased part. It is not generally employed in the earliest stages of tuberculosis because its value is not yet fully appreciated by the majority of the medical profession and because it is believed that the patient may recover without pneumothorax. As it has saved many lives it is reasonable to assume that artificial pneumothorax would save many more if it would be employed in the earliest stage before adhesions have formed and while the disease is unilateral. At present its use is almost entirely confined to tuberculosis cases, although it is sometimes induced for purposes of diagnosis, to relieve the pain of pleurisy, and in the treatment of bronchiectasis or abscess of the lung.—*The Future of Artificial Pneumothorax Treatment, L. T. S. Burrell, Tubercle, October, 1931, xiii, 4.*—(*M. E. P.*)

Artificial Pneumothorax.—The author reports a pneumothorax experience between the years 1920 and 1928 among 649 sanatorium patients. The results are compared during the same years with nontreated cases, especially those in which pneumothorax could not be achieved. The treatment offers numerous advantages over conservative treatment, especially so far as duration of life, ability to work and loss of bacilli are concerned. The author also compares artificial-pneumothorax treatment with phrenic exairesis and plastic operation. During the period of from two to ten years after treatment with pneumothorax 8.1 per cent died, with phrenic exairesis 13 per cent, and with plastic operations 19.4 per cent: healing or improvement was achieved in 81.7 per cent with pneumothorax, 66.6 per cent with phrenic exairesis, and 77.9 per cent with plastic operations. No improvement was noted in 10.2 per cent of pneumothorax, 13.7 per cent of phrenic exairesis and 2.7 per cent of plastic-operation cases. It is concluded that each of the three procedures has its indications which cannot be shifted from one to the other.—*Ergebnisse der Behandlung der Lungentuberkulose mit künstlichem Pneumothorax, W. Sachs, Beitr. z. Klin. d. Tuberk., 1930, lxxiv, 302.*—(*H. J. C.*)

Artificial Pneumothorax.—The following report deals with 26 cases of pulmonary tuberculosis treated with artificial pneumothorax. The smallness of the number does not, of course, permit of any far-reaching conclusions, but the progress of the patients seems to justify publication and to emphasize once more the great value of artificial pneumothorax as an adjunct to treatment in suitably chosen cases of pulmonary tuberculosis. Of the 26 cases, 16 are doing well, 5 are doubtful (of these one is fit for work while four have a poor prognosis), and one has died. Seventeen are fit to work as against eight who are not. In the majority of the cases the original occupation has been resumed. Eighteen cases have no tubercle bacilli in the sputum, while eight retain them.—*Artificial Pneumothorax. Some Results of Out-Patient Treatment, V. S. Hodson and R. S. Johnson, Lancet, May 9, 1931, ccxx, 1028.*—(*F. G. P.*)

Bilateral Artificial Pneumothorax.—The author points out that Forlanini attempted bilateral pneumothorax in 1911 and that in subsequent years it has become increasingly valuable. The author reports 16 observations, and urges an early institution in bilateral disease or in disease with progression on the other side in the presence of unilateral pneumothorax. Contraindications are high-grade cachexia and fever, disease in other organs, with the exception of the larynx, and cases of predominantly exudative phthisis. Most authors use a low pressure and of great importance is the manometric control. The most frequent complications to the treatment are exudate-formation and spontaneous pneumothorax.—*Zur beiderseitigen Kollapsbehandlung der Lungentuberkulose, J. Leitner, Beitr. z. Klin. d. Tuberk., 1930, lxxiii, 718.*—(*H. J. C.*)

Bilateral Artificial Pneumothorax.—In properly selected cases, simultaneous bilateral artificial pneumothorax is often most efficacious. The operation should be

performed with the idea of obtaining as selective a collapse as possible in order not to diminish pulmonic function in the healthy areas. Its greatest value is in cases with rather sharply localized lesions. Advanced or bronchopneumonic lesions contraindicate the use of this procedure. Patients with cardiac lesions and extrapulmonary localization of tuberculosis are poor risks. The same thing applies to cases with marked cachexia. Perforation of the lung must be carefully guarded against.—*Collasso elettivo e pneumotorace bilaterale simultaneo, A. Curti, Tubercolosi, March, 1930, no. 3, 109.*—(*U. E. Z.*)

Bilateral Artificial Pneumothorax.—Bilateral pneumothorax was instituted, and with improvement it was found that it could be discontinued on one side. The author lauds the continued determination of red-cell sedimentation as an index of the patient's condition. Two interesting cases are reported with roentgenographs, and curves of the sedimentation reaction which indicate the latter's value as an index of the condition on the contralateral side and further treatment.—*Beitrag zur doppelseitigen Pneumothoraxbehandlung, W. Göbel, Ztschr. f. Tuberk., 1931, lix, 329.*—(*H. J. C.*)

Bilateral Artificial Pneumothorax.—The author reports a case of bilateral pneumothorax with exudate-formation on one side and empyema on the other. A left-sided cavernous phthisis was treated with pneumothorax and a spread in the other lung followed. With the appearance of liquefaction pneumothorax was performed on both sides. There resulted, on the left side, exudate- and empyema-formation, and on the right side, exudate-formation. The exudate side was drained while the empyema side was neither aspirated nor refilled. Continual clinic and roentgenologic control was found essential. There resulted final resorption and fibrosis on the empyema side. The other side was tended to heal. Another case of bilateral pneumothorax is reported, which improved clinically and in which the patient was able to pursue the trade of shoemaker four hours daily without injury. The author points out the importance of individualization of the two sides and carefully controlling the situation with clinical and roentgenologic examinations.—*Kasuistisches und Kritisches zur doppelseitigen Pneumothoraxtherapie, E. Schuster, Ztschr. f. Tuberk., 1931, lix, 323.*—(*H. J. C.*)

Bilateral Artificial Pneumothorax.—Bilateral pneumothorax was instituted in 39 cases, of which 17 had bilateral cavities, 14 unilateral cavities with disseminated foci or infiltrations on the contralateral side, 3 bilateral dissemination with widespread disease of the upper pulmonary area, and 5 unilateral pneumothorax with new focus-formation on the contralateral side. Bilateral pneumothorax is contraindicated in old heavy-walled cavities, circulatory disturbances, intestinal tuberculosis, kidney complications, cachexia, and wide-spread processes throughout both lungs. In the latter cases the hazard of spontaneous pneumothorax is especially great. Of the 39 cases treated, 71.8 per cent became free from bacilli and 20.5 per cent from expectoration, making a total of 92.3 per cent with satisfactory results. Similar processes yielded results in only 11 per cent of the cases without bilateral pneumothorax. The number of pneumothorax exudates in bilateral pneumothorax are fewer than in unilateral pneumothorax.—*Die Behandlung der Lungentuberkulose mit doppelseitigem Pneumothorax, W. Sachs and F. Hoth, Beitr. z. Klin. d. Tuberk., 1930, lxxiv, 191.*—(*H. J. C.*)

Contralateral Side in Artificial Pneumothorax.—In spite of the fact that there have been numerous publications on the contralateral lung in pneumothorax treatment of pulmonary tuberculosis there is no agreement as to the explanation of why the contralateral lung improves and at times becomes progressively worse. Pneumothorax exudates appear to have an unfavorable action upon the contralateral lung. The character of the disease in the contralateral lung and internal secretory processes are considered of significance.—*Studien über die Gegenseite beim Pneumothorax. I. Mitt., O. Gisevius, Beitr. z. Klin. d. Tuberk., 1930, lxxv, 462.*—(*H. J. C.*)

Infiltrations on Contralateral Side in Artificial Pneumothorax.—New foci on the contralateral side during pneumothorax treatment appear very suddenly during a period of rest or improvement. Their origin from exogenous superinfections, according to Braeuning, is considered unlikely because of the small percentage occurring in sanatoria. Likewise, bronchogenic metastases are in the majority of cases unlikely. The most possible infection source is haematogenous seeding. It may even be possible that old haematogenous foci may become reactivated, but new foci must also be considered. The similarity of the later infiltrations to the early infiltrations indicates the same source. The treatment of the contralateral infiltration, even though no liquefaction is present, is immediate pneumothorax. The duration of collapse treatment can be markedly shortened if immediately ap-

plied.—*Infiltrative Neuherdbildungen der Gegenseite bei Pneumothoraxbehandelten, H. Fechter, Ztschr. f. Tuberk., 1930, lviii, 385.*—(*H. J. C.*)

Management of Artificial-Pneumothorax Exudates.—Failure usually attends the conservative treatment of mixed-infection pneumothorax exudates and for this reason time should not be lost in their treatment. Thoracotomy favors the removal of pus. After the patient becomes afebrile a posterior thoracoplasty, eventually followed by an anterior thoracoplasty, is suggested. To remove the frequently persisting residue a modification of Kirschner's muscle-implantation is recommended. The technique of the operation is described and a number of cases are given, with the results attained.—*Über operative Behandlung mischinfizierter Pneumothoraxexsudate, H. Storz, Beitr. z. Klin. d. Tuberk., 1930, lxxv, 734.*—(*H. J. C.*)

Artificial Pneumothorax in Ambulant Cases.—On the basis of 33 ambulant cases treated with pneumothorax the author reports no less favorable results than those following sanatorium treatment. The ambulant treatment is recommended especially in those communities where social conditions are poorly organized to deal with cases in any other manner.—*Ambulante Pneumothoraxbehandlung bei der einseitigen Lungentuberkulose, L. Kogan, Ztschr. f. Tuberk., 1930, lvii, 173.*—(*H. J. C.*)

Results of Artificial Pneumothorax among Manual Workers.—The author reports 122 cases of pneumothorax during the period of 1925 to 1929 in which especially good results attained. Among 90.7 per cent with open tuberculosis, 41.9 per cent were free from bacilli following pneumothorax treatment. Following an average sanatorium treatment of 4.7 months, 80.2 per cent were discharged as able to work as compared to 59.8 per cent without pneumothorax. After 1 to 5 years 61.6 per cent of the pneumothorax hand-workers were still able to work. On an average of 3 per cent of all the people who labored with their hands were treated with pneumothorax between the years 1925–1928.—*Erfolge der Pneumothoraxbehandlung bei Handarbeitern. Ein Beitrag zur sozialen Bedeutung der Pneumothoraxbehandlung im Rahmen der Tuberkulosebekämpfung, O. Neuburger, Ztschr. f. Tuberk., 1930, lvii, 232.*—(*H. J. C.*)

Results of Artificial-Pneumothorax Treatment of Early Infiltrates.—The author treated 40 cases with typical early infiltrates (Redeker). All were under observation 2¼ years later. Twenty-five of the cases were given unilateral pneumothorax and 7 were combined with phrenicectomy; 4 were treated with the cautery, 1 with bilateral pneumothorax, 2 chemotherapeutically, and 1 died with spontaneous pneumothorax six months later. The complications found were 9 with exudate, 3 with high fever, 6 with dry pleurisy, and 2 with extension to the other side. Twenty-seven cases became healed or inactive, 8 remained active, and 2 died. In 25 the sputum disappeared, 27 were able to work, 5 were partially so, 4 were unable to work, 2 died, and 2 were lost track of.—*Über klinische und soziale Erfolge der Pneumothoraxbehandlung beim Frühinfiltrate, Marie-Therese Lassen, Ztschr. f. Tuberk., 1930, lviii, 335.*—(*H. J. C.*)

Factors Determining Prognosis during Artificial Pneumothorax.—It is most difficult during the course of artificial pneumothorax to determine what progress the pulmonary lesion is making. The absence of cough, expectoration and fever often leads to the erroneous conclusion that the disease is cured and to the subsequent discontinuance of the pneumothorax. Later, after a variable period, signs of reactivation appear, and it is no longer possible to recompress the lung because of the formation of adhesions. Many pneumothoraces are induced, but few lead to complete cure. This is due to inefficient pressures, too infrequent refills, and in a large measure to the unwarranted abuses indulged in by the patient who considers himself cured. Radiographic studies reveal only the quality of the collapse and give no insight as to the pathological or reparative processes going on within the lung. Most patients receiving this treatment show a rapid gain in weight a few weeks following the institution of pneumothorax, and the behavior of the weight-curve after reaching a certain level affords a good indication as to the condition of the disease. Three types of weight-curve have been observed. In the first type the curve rapidly rises and then proceeds in a straight line, at a level higher than the estimated normal weight for the individual. This represents the optimum weight and indicates that the prognosis as to the efficacy of the pneumothorax is favorable. The second type of curve shows a similar rapid increase and then a more or less rapid descent, stabilizing itself on a level just above the initial weight or slightly below the estimated normal. This is observed in patients who are markedly undernourished and who show evidences of toxaemia. The prognosis is good, provided there are no persistent râles or pains in the chest. The patients in this

group usually develop early and persistent effusions. The prognosis in the third group is usually poor. The weight curve shows the initial rise and then it becomes very irregular, with no tendency toward stabilization. These patients usually have attacks of fever with cough and expectoration. The pneumothorax is therefore inefficient. These observations were made only on patients with strictly unilateral lesions; they do not include cases with partial and incomplete collapse. Generally, with the onset of artificial pneumothorax, the initial gain in weight and constitutional improvement, the patient experiences great relief from thoracic pain. The persistent absence of all pain apparently parallels the first type of weight-curve, and the outlook is good. There is a type of pain, due to incomplete closure of cavities by the pneumothorax, which is frequently overlooked and rarely complained of by the patient unless specifically questioned for it. It is characterized by a vague sense of oppression and fastidiousness; as though there is something within the chest which has not been liberated from its bonds. Such sensations indicate that the lesion within the compressed lung is active, and are soon followed by the appearance of an effusion or the formation of adhesions. Individuals with the weight-curve of type one, and without chest pain, frequently have râles which persist for an indefinite period. These are not due to an active tuberculous process, but rather to small bronchiectases and peribronchial sclerosis. Immediately after a refill they disappear. Râles heard in patients with the weight-curve of type two and more commonly type three, with indefinite pains in the chest and exacerbations of cough and fever, are due to small uncompressed cavities, and further indicate the inefficacy of the pneumothorax. The patients undergoing collapse therapy, who do not gain in weight and have vague pains in the chest and persistent râles, have an unfavorable prognosis and the conduct of the treatment under greater pressures and more frequent refills is indicated.—*Valore prognostico comparativo dei dolori locali, del peso e del rantolo orale nei tubercolotici pneumotoracizzati, M. Tripodi, Tubercolosi, October, 1931, xxiii, no. 10, 353.*—(*U. E. Z.*)

Neuritis Complicating Artificial Pneumothorax.—Neuritis in the region of the trigeminus nerve during the course of artificial pneumothorax has been frequently described. The author reports a case of neuritis of the cervical and brachial plexus with exacerbations following refills. The onset of the neuritis was following pleuritis with a small effusion. With improvement of the general condition the symptoms of neuritis disappeared. A satisfactory explanation of this nervous complication following artificial pneumothorax has not been given.—*Neuritis des Plexus cervicalis und brachialis als Komplikation des künstlichen Pneumothorax, H. J. Schmid, Beitr. z. Klin. d. Tuberk., 1930, lxvi, 222.*—(*H. J. C.*)

Alternate Artificial Pneumothorax and Phrenicectomy.—The authors report on 12 cases treated with alternate pneumothorax and phrenic exairesis, 7 with beneficial results and 5 without benefit. They consider their results satisfactory in view of the fact that only severe cases were treated. A prolonged period of rest, preferably in a sanatorium, is considered essential to success.—*Wechselseitige Behandlung mit Pneumothorax un Phrenicusexairese bei doppelseitiger Lungentuberkulose, L. Dünner and S. Spiro, Ztschr. f. Tuberk., 1930, lvi, 342.*—(*H. J. C.*)

Phrenicectomy.—Phrenicectomy, although for a time in oblivion, belongs now to the armamentarium of the physician treating tuberculosis. Physicians do not yet agree as to the results of this procedure in tuberculosis. Twenty cases in the author's experience have led to the opinion that the operation is an independent beneficial procedure in lesions in any part of the lung. It often leads to very satisfactory and rapid healing of the lesion, decrease in sputum, disappearance of bacilli from the sputum (with closure of cavity), and retrogression of symptoms.—*Durch Phrenikusexairese geheilte Lungentuberkulose, Akif-Schakir, Deutsche med. Wchnschr., June 26, 1931, lvii, 1109.*—(*H. S. W.*)

Phrenicectomy.—According to results in 107 cases phrenic exairesis has its place as an individual procedure in the treatment of pulmonary tuberculosis, but its significance in eliminating bacilli from the sputum and closing cavities must not be overvalued. As an adjunct to other collapse methods it has a decided place.—*Die Behandlung der Lungentuberkulose mit künstlicher Zwerchfellähmung, W. Sachs, Beitr. z. Klin. d. Tuberk., 1930, lxxiv, 284.*—(*H. J. C.*)

Phrenicectomy.—Indications are ulcerative and infiltrative lesions in the bases, basilar bronchiectasis, basal abscess of the lung, fistulous empyema, and cases in which the induction of artificial pneumothorax was unsuccessful. It is sometimes of great help in lesions around the hilum and in the middle lobe. Indirectly, apical lesions have been benefited by the upward pressure exerted by the lower lobes. In bilateral lesions the operation may be used with more

freedom than artificial pneumothorax although it is most desirable that the process in one of the lungs be fairly well cicatrized. It is of no value in extensive pulmonary disease.—*La frenicoexeresi quale ausilio terapeutico nella tubercolosi polmonare, M. Ardizzone, Tubercolosi, November 1931, xxiii, no. 11, 389.*—(*U. E. Z.*)

Results of Phrenicectomy.—The author used phrenic exairesis in combination with high-altitude treatment without any other surgical procedure. The exairesis was performed in cases which, after treatment for a number of months, did not become free from bacilli, and especially in unilateral basal disease, and when pneumothorax could not be performed. Of 136 cases treated, 77 had a mild, 45 a moderately severe, and 9 a severe involvement on the opposite side. Of all the cases 4 became worse on the contralateral side and 13 improved. In 34 of the cases complications existed, and in 80 the disease had existed for over 3 years. The cases with lesions in the middle or lower lobes were favorably influenced and some of the cases with upper-lobe processes improved. Of 133 cases with bacilli in the sputum 58 became negative. Of the total at the end treatment 35 were considered healed, 77 improved, 21 unchanged, and 3 progressively worse. Of 67 cases that had been operated on within 2 to 6 years, 83.5 per cent were living, 62.5 per cent free from bacilli, and 53.5 per cent able to work.—*Über die Phrenicusexairese als selbständigen Eingriff bei Lungentuberkulose, Lilly Graf, Beitr. z. Klin. d. Tuberk., 1930, lxxiv, 241.*—(*H. J. C.*)

Haemoptysis Following Phrenicectomy.—The author reports a fatal pulmonary haemorrhage three days after phrenic exairesis in a 23-year-old patient with right-sided lower-lobe tuberculosis. Haemoptysis occurred during the night following the operation and continued. At postmortem no tuberculosis was found even histologically, but there was a chronic carnefied pneumonia of the right middle lobe, with erosion of a branch of the pulmonary artery, resulting from a sharp foreign body, possibly a bronchial stone. The origin of this foreign body was not definitely determined. The phrenic exairesis was not considered important in the fatal haemorrhage.—*Tödliche Lungenblutung 3 Tage nach einer Phrenicusexairese, T. Naegeli, Centralbl. Chir., 1930, lvii, 2962.*—(*H. J. C.*)

Combined Phrenicectomy and Scaleniotomy.—Verifying experiments on monkeys that indicated the lack of danger in combined phrenic exairesis and scaleniotomy at one operation, the author found that a drop of the first and second ribs and a decided decrease in the upper pulmonary areas occurred. The results in 12 cases were immediately and permanently better than in simple phrenic exairesis. In 3 cases cavities completely disappeared. Phrenic exairesis should be reinforced by scaleniotomy in upper-lobe processes, when pneumothorax is not indicated or impossible, when pneumothorax exists with string-like adhesions and cavities or with large adhesions, when there is insufficient shrinking of the upper pulmonary region and, finally, even when thoracoplasty has been done.—*Über erfolgreiche Versuche bei einseitiger Lungentuberkulose den therapeutischen Erfolg der Phrenicusexairese durch Resektion der Scalenusmuskeln zu steigern, H. Els, Centralbl. Chir., lvii, 1930, 2228.*—(*H. J. C.*)

Combined Phrenicectomy and Scaleniotomy.—The author found the vital capacity diminished further upon combined phrenic exairesis and scaleniotomy. Cases suitable for operation are those in which there is disease of the upper lung portions. Contraindications for the operation are the same as those for simple exairesis.—*Tierexperimentelle und klinische Versuche, den therapeutischen Erfolg der Phrenicusexairese durch Resektion der Scalenusmuskeln zu steigern. II. Mitt., Kochs, Els und Junkersdorf, Beitr. z. Klin. d. Tuberk., 1930, lxxv, 772.*—(*H. J. C.*)

Scaleniotomy in Treatment of Pulmonary Tuberculosis.—The Loeschke procedure consists in severing the scaleni muscles and resection of the first rib. In the first case here reported the patient within a year after operation was free from bacilli. As a preliminary in this case a phrenic exairesis was done. In the second case the observation period is still so short that final conclusions could not be given. In this case roentgen pictures at the end of four weeks showed a diminution in the size of the cavity on the operated side. An exairesis was not performed.—*Eine neue chirurgische Behandlung der Lungentuberkulose, H. and Grünewald, Beitr. z. Klin. d. Tuberk., 1930, lxxiv, 316.*—(*H. J. C.*)

Statistics of Extrapleural Thoracoplasty.—Although it is now quite clear that thoracoplasty may be a boon in the treatment of tuberculosis, many "fit" patients fail to be operated on because of the hesitancy or ignorance of the physicians at large. Indications have now become less narrow and are more or less well known. Briefly, these are (1) unilateral, cavernous

phthisis, with or without fibrosis; (2) bilateral cases in which the contralateral side is not severely diseased and is not progressive; (3) incomplete pneumothorax with adherent, cavernous apex or upper lobe; (4) purulent effusion complicating pneumothorax or occurring spontaneously; (5) severe haemoptysis in which pneumothorax is unsuccessful; and (6) marked pulmonary fibrosis with cardiac displacement, leading to circulatory disturbances. Preparatory to operation, the patient, if this is feasible, should be strengthened by exercise and psychic influence, but should not be given digitalis or morphine. Local anaesthesia is preferable and speedy operative procedure should be done whenever possible. The patient should be bandaged, but no adhesive plaster should be used, as it hinders breathing. Postoperative Murphy-drip or physiological salt solution is in order. After three or four days, regular exercises of the arm should be begun to prevent fixation. Out of 320 plastic operations reported (80 were one-stage and 240 were two-stage operations) 17, or 5.3 per cent, died within the first eight weeks, five of these 17 having had pyopneumothorax. Of 239 cases of unilateral cavity cases, eight (3.3 per cent) died and of 81 cases with complications (bilateral disease, pyopneumothorax, etc.) nine (11 per cent) died. Late results of the operation (1914 to 1929) were observed in 200 cases. Of these, 129 (64.5 per cent) are still living, 67 (33.5 per cent) are dead, and the condition is unknown in four (2 per cent). Of the living, 43.5 per cent are healed and 19.5 per cent are improved; healing in this respect means persistently negative sputum and full ability to do work. Of the uncomplicated cases, 70 per cent were materially improved; of the complicated cases, 50 per cent showed improvement. Of the 47 cases operated on between 1919 and 1925, 19 (40 per cent) are healed or definitely improved; of 153 cases operated on from 1925 to 1929, 110 are still living, of which 107 are improved or healed. Most of the deaths occurred within two years of the operation. Of Sauerbruch's 420 reported cases, 40 per cent healed. Thoracoplasty is an effective method to combat the most severe forms of tuberculosis if correct indications and technical procedures are carried out.—*Erfolgsstatistik der extrapleuralen Thorakoplastik, O. Schedtler, Deutsche med. Wchnschr., March 20, 1931, lvii, 491.*—(*H. S. W.*)

Results of Thoracoplasty.—The author reports 36 plastic operations in a sanatorium, of which 19 of the cases are well, 9 improved, 1 unimproved, and 3 dead within 2 years and 4 shortly after operation. The after-treatment consisted of 8 different types of gymnastic exercises, intended to prevent postoperative scoliosis. The importance of early exercise is discussed.—*Die Behandlung der Lungentuberkulose mit Thorakoplastik, W. Sachs, Beitr. z. Klin. d. Tuberk., 1930, lxxiv, 254.*—(*H. J. C.*)

Extrapleural Pneumolysis.—The author reports 11 paraffine fillings, using Winternitz's operation. An extrusion of the paraffine mass into the lung was never observed. The indications for the treatment were upper-lobe contracting cavernous processes, partially uncollapsed cavities following plastic operations, and finally haemorrhages from apical cavities. The further these indications are deviated from the less favorable the clinical results. Satisfactory results were obtained in 4 cases, in 3 improvement occurred, while in the other 4 the results were unsatisfactory.—*Indikationen und Ergebnisse der Plombenbehandlung der Lungentuberkulose, N. Roth, Beitr. z. Klin. d. Tuberk., 1930, lxxiv, 602.*—(*H. J. C.*)

Pneumolysis in Pulmonary Tuberculosis.—The authors report 8 cases, observed for one year following extrapleural pneumolysis: 4 of these were able to work, while two of them, although able, had not yet returned to their work. Four were free from expectoration and only 3 of the rest had tubercle bacilli in their sputum. The disappearance of cavities could be definitely determined in only one case. The Ziegler operation was employed. After-treatment consisted of at least three weeks of absolute bed-rest, even in the absence of complications, which was considered important for the healing of the plug. Extrapleural pneumolysis comes into consideration in cases of bilateral disease, in which bilateral pneumothorax is not available and a large cavity of the one side should be closed, in isolated upper-lobe cavities when thoracoplasty is not yet indicated, and in cases in which thoracoplasty is considered too drastic. As a whole this operation is merely useful when other operative procedures cannot be considered. The optimistic attitude that extrapleural pneumolysis can replace plastic operations is not concurred in.—*Über die Plombierung bei Lungetuberkulose, W. Sachs and W. Sperl, Beitr. z. Klin. d. Tuberk., 1930, lxxiv, 168.*—(*H. J. C.*)

Open and Closed Pneumolysis.—In two series of artificial-pneumothorax cases adhesions were severed by the open method and the closed Jacobaeus method. Two cases in the first series resulted in

empyema, in which staphylococci were found. In the two cases in which the Jacobaeus method was used no exudate or other fluid formed. The author does not agree with Sauerbruch that adhesions can be severed better surgically with the open method after thoracotomy.—*Beitrag zur Frage der offenen und geschlossenen Strangdurchtreenung, W. Sachs, Beitr. z. Klin. d. Tuberk., 1930, lxxiv, 204.*—(*H. J. C.*)

Severing of Adhesions.—The author presents numerous phases of thoracoscopy, as well as the anatomical-pathological relations of adhesions which must be taken into consideration in therapeutics. Inflammatory adhesions of the pleura are discussed from the standpoint of their origin. The combination of galvanocautery and diathermy is considered in all of its phases for severing adhesions. Various local and general conditions play an important rôle in the institution of thoracoscopy and cautery. Cauterization is contraindicated in nephropathies and in early syphilis. Every case has to be evaluated individually. Laryngeal tuberculosis is favorably influenced by successful artificial pneumothorax. Mild turbid pneumothorax exudates or empyemata are not always contraindications. The author reports 33 cases with serous or mild pneumothorax exudates and 6 cases of pyopneumothorax without fistula: 253 of 460 cases were freed from bacilli in the sputum within 4.4 months. It is difficult radiologically to determine the number, form and size of the adhesions. Stereoscopic pictures prove valuable. Complete adhesions between the chest-wall and cavity-wall make thoracoscopy superfluous. Frequently, however, neighboring adhesions may be severed with helpful results. For the operability of an adhesion the size of the transverse section is not as important as its composition. The technique of thoracoscopy is thoroughly described. The anatomical relation of the adhesions to the various large blood-vessels is an important consideration. The percentage results are given by the author. Of 160 cautery operations there were only two complicated with empyema. The mortality was nil.—*Thorakoskopie und Kaustik. IV. Mitt. Wesen, Indikation und Bewertung der Verwachsungslösung, G. Maurer, Beitr. z. Klin. d. Tuberk., 1930, lxxvi, 9.*—(*H. J. C.*)

Cauterization of Adhesions.—The author reports 200 cauterizations of adhesions, performed during the past two years according to Kremer's technique. There were 25.4 per cent of string-like, 66.7 per cent of membranous, and 7.9 per cent of flat adhesions. Severing of the adhesions resulted in good collapse in 51.9 per cent, partial collapse in 37.7 per cent, and negatively in 10.4 per cent. Markedly improved were 9.4 per cent, improved 74 per cent, and not improved 16.6 per cent. Before the operation 91 per cent of the cases had tubercle bacilli in the sputum and after the operation only 32 per cent. In 88 per cent of the cases a slight exudate formed, with increase of temperature of 1 to 2 degrees which fell within 3 to 4 days, and resorption occurred within 10 to 12 days. This is a normal reaction to the operation. In 7 per cent of the cases there developed a moderate to large exudate and in 2 an empyema. Among the 200 cases there was not one with dangerous intrathoracic haemorrhage.—*Zur Thorakokaustik, A. Heymer, Ztschr. f. Tuberk., 1930, lix, 37.*—(*H. J. C.*)

Bilateral Pneumolysis.—A 20-year-old patient had bilateral cirrhotic open tuberculosis, with extensive cavities in the apex. Six weeks' observation was of no benefit nor was pneumothorax successful. A bilateral pneumolysis, completed within 2 weeks, resulted in an excellent outcome, in that 5 months after the operation no cavities were discernible, tubercle bacilli had disappeared from a scanty sputum, the sedimentation reaction markedly improved, and the blood-picture was normal. Thus, a dubious prognosis was changed to an excellent one.—*Doppelseitige Plombe, ein kasuistischer Beitrag zur doppelseitigen Kollapstherapie, G. Frischbier, Ztschr. f. Tuberk., 1930, lviii, 29.*—(*H. J. C.*)

New Organizable Material for Extrapleural Pneumolysis.—A resorbable material, named *Vivocoll*, consisting of cow plasma coagulated with calcium, is recommended for extrapleural pneumolysis. This preparation has the advantage of being liquid when introduced and of being coagulated rapidly. In this way pressure necrosis of the pulmonic tissue and exudate-formation in unfilled pockets are avoided. The addition of iodoform makes an antiseptic mass of the preparation. Other materials to delay absorption can be added, such as paraffine, asbestos powder, finely divided cartilage, etc. The author describes the histological findings after 6 months, indicating an ingrowth of connective tissue.—*Über eine neue, organisierbare Gussplombe zur extrapleuralen Plombierung der Lunge, K. Heine, Beitr. z. Klin. d. Tuberk., 1930, lxxiii, 808.*—(*H. J. C.*)

Sympatheticectomy in Pulmonary Tuberculosis.—Cervical sympatheticectomy is proposed in the treatment of pulmonary tuberculosis, in order to promote better

healing through alteration of the pulmonary circulation by section of the sympathetic vasomotor fibres.—*La simpatectomia nella cura della tubercolosi polmonare, R. Lusena, Tubercolosi, July, 1930, no. 7, 299.—(U. E. Z.)*

Actinotherapy in Tuberculosis Dispensary.—During 1928, 1929 and 1930, 273 cases of nonpulmonary tuberculosis were treated with artificial light at the Eccles Dispensary. Of these, 152 were discharged as quiescent. These cases may be grouped as to age and type of disease, as follows: 35 adults and 21 children had lupus and scrofuloderma; 29 adults and 35 children had adenitis with softening; 4 adults and 11 children had adenitis without softening; 8 adults and 1 child had tuberculosis of the bones and joints; 3 adults and 3 children had tuberculosis of the abdomen; and 2 adults had other types of tuberculosis. The average duration of treatment of the 152 cases was seven and three-fourths months. In 90 cases pigmentation was deep, in 51 it was of medium depth, and in 11 it was slight or absent. Improvement appeared to be definitely associated with a good degree of pigmentation, though early pigmentation is undesirable. Of 23 cases showing some degree of relapse, there were 16 of lupus, 4 of adenitis with skin involvement, and 3 of adenitis without skin involvement. Carbon-arc lamps were used for the majority of cases. The initial dose was fifteen minutes, back and front, at 3 feet distance. This was increased at weekly intervals by thirty minutes to a maximum of two and one-half hours. This method was preferred to the shorter exposure to more powerful cored carbons as being cheaper and safer. Skin testing was not necessary. In addition to general irradiation the application of concentrated light is necessary for the cure of lupus. This light was obtained from a water-cooled mercury-vapor Kromayer lamp with exposure sufficient to blister (five to twenty minutes). Care was taken to render the part exposed as nearly bloodless as possible by pressure of the lens. It is concluded that artificial-light treatment is more useful in cases of lupus and allied skin conditions and adenitis with and without softening than in tuberculosis of bones and joints, which should receive specialized institutional care. To obtain the best results, actinotherapy should be combined with various forms of local treatment. Photographs illustrating lesions before and after treatment are reproduced.—*Actinotherapy at a Tuberculosis Dispensary, G. Jessel, Lancet, May 30, 1931, ccxx, 1182.*—(*R. M. F.*)

Dietetic Treatment of Tuberculosis.—The emphasis on diet in tuberculosis dates back to the earlier days of the human race, when the common man was usually hungry and tired and when an adequate meal restored his sense of well-being. "Consumption" in its course at once suggested the importance of food. The tendency to supply an excessive diet resulted. McCann in 1919 showed that the food requirements of the tuberculosis patient at rest are not large, and that forced feeding with a resulting increase in pulmonary function was probably harmful. He suggested a diet consisting of 60 to 90 gm. protein, fat up to the limit of digestive tolerance and carbohydrates to raise the total calories to 2,500 or 3,000. In the search for a diet which will improve the patient's chance for recovery Sauerbruch, Herrmannsdorfer, and Gerson have used a diet low in sodium chloride, high in acid-forming elements, and with ample vitamine content. It has apparently been beneficial in lupus, but its effectiveness in pulmonary tuberculosis has not been so easily determined. McConkey and Smith believe that all vitamines are of extreme importance in tuberculosis and other chronic infections, but McCollum points out that diets can readily be prepared from ordinary foods which will contain several times the minimum amount of vitamines upon which normal nutrition can be maintained. McCollum points out, however, that there is a tendency to rely too much upon cereals, supplemented by muscle meats, potatoes and sugar, and that protective foods, such as milk, eggs, leafy vegetables and fruits, are necessary to improve nutrition and skeletal development and to increase the resistance to infection. *Conclusions:* There is much evidence to prove that there are certain minimum requirements as far as proteins, fats, carbohydrates, vitamines, and minerals are concerned, in order that normal health may be maintained. Metabolic studies in tuberculosis prove that increasing the diet beyond a certain point is detrimental to the cure of pulmonary tuberculosis because of the increased pulmonary activity necessitated by the increase in metabolism. Glen Lake Sanatorium has prepared a diet such as would be well balanced and adequate for a man in health, and uses this unless there is definite gastrointestinal pathological changes. The diet provides about 3,000 calories a day, and includes half a pint of milk with each meal and at bed-time. It contains 70 to 100 gm. protein, about 300 gm. carbohydrate, and the balance in fat. Those who are below weight receive an extra half-pint of milk morning and afternoon. The general suggestions of McCollum have been

followed, providing protective foods such as dairy products, including one quart of milk daily, leafy vegetables, with other vegetables for their antiscorbutic properties (which are apparently present although the vegetables are canned), and thereafter deriving the remainder of the food supply from cereal products, tubers, root vegetables, sugar and meats.—*The Dietetic Treatment of Tuberculosis, E. S. Mariette, Ann. Int. Med., December, 1931, v, 793.*—(*R. D.*)

Dietary Treatment of Pulmonary Tuberculosis.—Dietetic treatment of 30 cases for a period of about 7 months with the Herrmannsdorfer diet revealed essentially no better results than on the ordinary diet. The diet, however, is considered of nonspecific value in the treatment of tuberculosis, in so far as it exerts an affect upon weight increase and hyperacidity, circulatory disturbance, etc.—*Beobachtungen bei Chronisch-Lungentuberkulösen nach längerem Gebrauch der Sauerbruch-Herrmannsdorfer Kostform, M. Mecklenburg, Ztschr. f. Tuberk., 1930, lvii, 47.*—(*H. J. C.*)

Diet in Tuberculosis.—There is no special curative diet for tuberculosis patients. In most chronic cases a mixed diet, containing plenty of proteins and fats and sufficient salts and vitamines, is indicated. Certain special diets, such as Gerson's, Sauerbruch's and Herrmannsdorfer's probably owe their stimulating effect to the removal of table salt. This type of diet is generally useful only in tuberculosis of skin and bones and joints. The modified Gerson diet was found in the author's experience to be insufficiently nourishing and to contain too much liquid food.—*Modern Dietetic Problems in the Treatment of the Tuberculous, M. G. Schroeder, J. State Med., August, 1931, xxxix, 435.*—(*J. P. B.*)

Salt-Free Diet in Tuberculosis.—The Gerson-Herrmannsdorfer salt-free diet has been thrown into the discard, generally speaking, in Germany, after a considerable period of careful observation. In November, 1929, Gerson demonstrated 25 cases of pulmonary tuberculosis which were supposed to have been healed in from five to eight weeks. Yet he did not give adequate proof in the way of complete records and X-ray examinations. However, many observers feel that the salt-free diet has a favorable result upon lupus and certain types of disease of the bones and joints. The contradictory opinions regarding the effect on pulmonary tuberculosis might be brought into more conformity after there was a more uniform interpretation of the X-ray pictures, which seems to have been the criterion in changing the course of the disease.—*Die Gründe der Ablehnung der salzlosen Diät durch die Tuberkuloseheilanstalten, O. Ziegler, Deutsche med. Wchnschr., January 2, 1931, lvii, 11*—(*H. S. W.*)

Gerson-Herrmannsdorfer Diet.—The Herrmannsdorfer-Gerson diet was used in 11 children and youths with pulmonary and surgical tuberculosis. Codliver oil without phosphorus was given. In spite of the fact that weight increases were obtained, the diet had no effect upon the course of the disease. In pulmonary tuberculosis the results were no better than when on the ordinary sanatorium diet, and the diet is harmful in intestinal tuberculosis. The calory content of the Gerson-Herrmannsdorfer diet is no less than that of the salt-containing diet. The favorable action noted is considered to be the result of psychotherapy. In children and youths the diet is not recommended.—*Erfahrungen mit der salzlosen Diät nach Gerson und Herrmannsdorfer bei Kindern und Jugenlichen, H. Starcke, Beitr. z. Klin. d. Tuberk., 1930, lxxiv, 61.*—(*H. J. C.*)

Treatment of Pulmonary Tuberculosis with Nonspecific Fatty Substances.—The treatment of 54 cases of pulmonary tuberculosis during the past 2 years with Gamelan (Lypomykal), by injection or in ointment, resulted in improvement in the clinical condition as well as sedimentation-rate and blood-picture. The cases were unsuitable for other types of treatment and were not sanatorium cases. Except for the exudative cases improvement, stationary condition and return to work were achieved. In children the benefits are more rapid. The author combined weekly inunctions with sun-treatment.—*Zur Behandlung der Lungentuberkulose mit unspezifischen Fettstoffen, E. Paulsen, Beitr. z. Klin. d. Tuberk., 1930, lxxv, 605.*—(*H. J. C.*)

Fat and Mineral Therapy in Pulmonary Disease.—The active factor of the Sauerbruch-Herrmannsdorfer-Gerson diet is without doubt the phosphorus-codliver oil, which combats demineralization and also provides vitamine A and D as well as fat antigens. The optimum amount of phosphorus for the adult is 0.5 mgm. three times a day; and for children three times daily 0.2 mgm. On account of the undesirable taste of the phosphorus-codliver oil, the preparation *Lofotin* with phosphorus is recommended, this being an egg-yolk-codliver-oil emulsion, containing yellow phosphorus, 0.0125 gm. in 300 cc. The preparation contains, aside from phosphorus and calcium, a number of nonspecific fats which produce

antibodies. Phosphorus poisoning was never noted with this preparation.—*Die Fett- und Mineral therapie der Lungenkrankheiten, A. Moeller, Ztschr. f. Tuberk., 1930, lvii, 390.*—(*H. J. C.*)

Technique of Chemotherapeutic Tests in Tuberculosis.—The author highly recommends the use of rabbits in chemotherapeutic studies in tuberculosis. For inoculation the superficial parts of the heavy broth cultures of tubercle bacilli are used. The culture mass is placed in a skin-pocket of the experimental animal, which heals within a few days and need not be closed with sutures. At the site of inoculation there develops, within 8 to 14 days, a tubercle without tendency toward healing. The value of a chemotherapeutic agent is gauged by the improvement, healing or extension of the lesion. This method is advantageous in that a large number of chemotherapeutic preparations can be tested within a short time.—*Chemotherapeutischer Tierversuch bei Tuberkulose, J. v. Daranyi, Ztschr. f. Tuberk., 1930, lvi, 357.*—(*H. J. C.*)

Indications for Gold Treatment in Tuberculosis.—The author reviews and presents information on gold treatment in tuberculosis. Krysolgan, aurophos and triphal should be used in productive tuberculosis, while sanocrysin, solganol and lopion are advised in exudative conditions. Bilateral cavernous processes as a whole are unsuited for gold treatment, and in these cases bilateral pneumothorax should be tried. Gold treatment is frequently a good preparation for surgical treatment, and exudative conditions can be improved to the extent that a plastic operation can be performed on the side with cavity.—*Indikation der Goldbehandlung der Tuberkulose, K. Henius, Ztschr. f. Tuberk., 1930, lviii, 424.*—(*H. J. C.*)

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